

Application No.: 10/530,442

AMENDMENTS TO THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A motor driver ~~that drives a motor composed of plural-phase windings that generate a magnetic field for rotating the rotor,~~ comprising:

plural-phase windings;

a plurality of transistors composed of a first group of transistors that operate as switches for supplying current to the windings power from one terminal of a DC power unit to one end of each winding, and a second group of transistors that operate as switches for supplying power from another terminal of the DC power unit to another end of each winding;

a position detector operable to detect a rotational position of the a rotor, based on a terminal voltage of each winding;

a current detector operable to output a current detection signal that is proportionate to a current supplied to the plural-phase windings;

~~a power distributor operable to control power distribution to the plural-phase windings by means of the position detector; and~~

a switching controller that includes

a forced-off signal generator operable to generate a forced-off signal that has a pulse width of a predetermined period in a predetermined cycle that corresponds at least to a clock, and a PWM signal generator operable to generate a basic PWM signal in accordance with a result of comparing the current detection signal and a speed command signal, and

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is operable to generate a PWM signal by AND synthesizing the forced-off signal with the basic PWM signal; and

a power distributor operable to generate first power distribution signals that correspond to a result of detection by the position detector. generate second power distribution signals by AND synthesizing a power distribution signal that corresponds to a result of detection by the position detector with the PWM signal from the switching controller, and output the generated first power distribution signals and the generated second power distribution signals, thereby causing the plurality of transistors to perform switching operation, operable to have performed a high-frequency switching method to turn the transistors to an ON state or to an OFF state for controlling the rotor at the predetermined speed by means of the position detector;

wherein the switching controller further controls such that upper and lower transistors which switch the plural-phase windings are forced into an OFF state by means of the forced-off signal included in the PWM signal, so as to force the plurality of transistors into the OFF state for a predetermined duration in a predetermined cycle; and

the position detector detects only while the switching controller forcedly keeps the plurality of upper and lower transistors are in the OFF state.

2. (Cancelled)

3. (Original) The motor driver of Claim 1, wherein

the position detector stops detecting for a predetermined period commencing at a point at which a change from the ON state to the OFF state occurs when the switching controller forces the OFF state, and

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the predetermined duration relating to the switching controller forcing the OFF state is longer than the predetermined period.

4. (Original) The motor driver of Claim 1, further comprising:

a rotation speed determiner operable to determine whether or not a rotation speed of the rotor is at least a predetermined speed,

wherein, when the rotation speed is determined to be at least the predetermined speed, the position detector detects at least while the plurality of transistors are in the ON state.

5. (Original) The motor driver of Claim 4, wherein

when the rotation speed is determined to be at least the predetermined speed, the switching controller stops forcing the OFF state.

6. (Original) The motor driver of Claim 4, wherein

the position detector (a) when the rotation speed is determined not to be at least the predetermined speed, stops detecting for a first period commencing at a point at which a change from the ON state to the OFF state occurs when the switching controller forces the OFF state, and (b) when the rotation speed is determined to be at least the predetermined speed, stops detecting for a second period commencing at a point at which the plurality of transistors change from the OFF state to the ON state, and

the predetermined duration relating to the switching controller forcing the OFF state is longer than the first period.

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7. (Original) The motor driver of Claim 4, wherein

the rotation speed determiner performs the determination based on the result of the detection by the position detector.

8. (Original) The motor driver of Claim 1 wherein

the switching controller turns the plurality of transistors to the ON state of the high-frequency operation, and sets a predetermined duration for which the transistors are forced into the OFF state directly before the transistors are turned to the ON state.

9. (Original) The motor driver of Claim 1, wherein

the predetermined cycle in which the switching controller forces the OFF state is no greater than 1/20000 seconds.

10. (Original) The motor driver of Claim 1, wherein

the position detector detects the position of the rotor by comparing a terminal voltage of each winding with a center tap voltage of all windings or with a pseudo-center tap voltage of the terminal voltages of the windings.

11. (Original) The motor driver of Claim 1, wherein

the cycle in which the switching controller forces the OFF state includes a segment in which a driving current of each winding is 0, and

the position detector detects during the segment.